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Listing of Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1.(original)An *E. coli* strain comprising:

- a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system preventing expression of active PEP-glucose phosphotransferase system proteins;
- b) an up regulated endogenous *galP* gene encoding active galactose-proton symporter;
- c) an up regulated endogenous *g/k* gene encoding active glucokinase; and
- d) a down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase.

2. (original) The *E. coli* strain of Claim 1, wherein the disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system comprises one or more of:

- i) disrupted endogenous *ptsH* gene preventing expression of active phosphocarrier protein;
- ii) disrupted endogenous *ptsI* gene preventing expression of active phosphoenolpyruvate-protein phosphotransferase; and
- iii) disrupted endogenous *crr* gene preventing expression of active glucose-specific IIA component.

3. (original) The *E. coli* strain of Claims 1 or 2, further comprising one or more of :

- e) a disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein;
- f) an up regulated endogenous *ppc* gene encoding active phosphoenolpyruvate carboxylase;
- g) an up regulated endogenous *btrR* gene encoding active cob(I)alamin adenosyltransferase; and
- h) an up regulated *yqhD* gene encoding active alcohol dehydrogenase.

4. (original) The *E. coli* strain of Claims 1, 2, or 3, further comprising one or more of:

- i) a disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;
- j) a disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;

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k) a disrupted endogenous *pfa* gene preventing the expression of active phosphotrasacetylase;

l) a disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A; and

m) a disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B.

5. (original) The *E. coli* strain of Claims 1, 2, 3, or 4, further comprising one or more of:

n) a disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;

o) a disrupted endogenous *glpK* gene preventing expression of active glycerol kinase; and

p) a disrupted endogenous *gldA* gene preventing expression of active NADH-dependent glycerol dehydrogenase.

6. (withdrawn) A method for the bioproduction of 1,3-propanediol comprising contacting the *E. coli* strain of Claims 1, 2, 3, 4 or 5 with a suitable carbon substrate under suitable conditions.

7. (withdrawn) The method of Claim 6, wherein the *E. coli* strain further comprises:

(i) glycerol-3-phosphate dehydrogenase;

(ii) glycerol-3-phosphatase;

(iii) dehydratase; and

(iv) dehydratase reactivation factor.

8. (currently amended) An *E. coli* strain comprising:

a) a disrupted endogenous phosphoenolpyruvate-glucose phosphotransferase system preventing expression of active PEP-glucose phosphotransferase system proteins;

b) an up regulated endogenous *galP* gene encoding active galactose-proton symporter;

c) an up regulated endogenous *glk* gene encoding active glucokinase;

d) a down regulated endogenous *gapA* gene encoding active glyceraldehyde 3-phosphate dehydrogenase;

e) a disrupted endogenous *arcA* gene preventing expression of active aerobic respiration control protein;

f) an up regulated endogenous *ppc* gene encoding active phosphoenolpyruvate carboxylase;

g) an up regulated endogenous *btuR* gene encoding active cob(I)alamin adenosyltransferase;

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- h) an up regulated *yqhD* gene encoding active alcohol dehydrogenase.
- i) a disrupted endogenous *mgsA* gene preventing the expression of active methylglyoxal synthase;
- j) a disrupted endogenous *ackA* gene preventing the expression of active acetate kinase;
- k) a disrupted endogenous *pta* gene preventing the expression of active phosphotrasacetylase;
- l) a disrupted endogenous *aldA* gene preventing the expression of active aldehyde dehydrogenase A;
- m) a disrupted endogenous *aldB* gene preventing the expression of active aldehyde dehydrogenase B;
- n) a disrupted endogenous *edd* gene preventing expression of active phosphogluconate dehydratase;
- o) a disrupted endogenous *glpK* gene preventing expression of active glycerol kinase;
- p) a disrupted endogenous *glcA* gene preventing expression of active NADH-dependent glycerol dehydrogenase; and
- q) ~~any one of the nucleotide sequences for a pSYCO construct SEQ ID NOs:65, 66, 67, or 68~~ one plasmid selected from the group consisting of
- 1) a plasmid comprising
- i) a first operon further comprising genes encoding glycerol-3-phosphate dehydrogenase and glycerol-3-phosphatase,
- ii) a second operon further comprising a 1.6 long GI promoter controlling genes encoding dehydratase and a gene encoding a first subunit of dehydratase reactivation factor,
- iii) a third operon further comprising a second subunit of dehydratase reactivation factor, and
- iv) having the sequence of SEQ ID NO:68;
- 2) the plasmid of SEQ ID NO:68, optionally containing orfW,
- 3) the plasmid of 1) or 2), wherein the first operon of i) is present in reverse orientation; and
- 4) the plasmid of 1), 2) or 3, where a 1.5 long GI promoter replaces the 1.6 long GI promoter in the second operon of ii).